ZEYU (JERRY) WEI

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EDUCATION

University of Washington - Seattle 09/2019-Present
Ph.D., Statistics
Advisor: Yen-Chi Chen, Tyler H. McCormick

University of Wisconsin – Madison 09/2015-05/2019
Major in Statistics (Honor), Math (Honor), Sociology (Concentration in Analysis and Research)
Certificate in Computer Science

RESEARCH INTERESTS

Machine Learning, Topological Data Analysis, Network Analysis, Nonparametric Statistics

Other Coursework: Data Visualization, Statistical and Probability Theory

TECHNICAL SKILLS

Proficient: Python, Spark, SQL, AWS, R

Familiar: Java, C++, Scala, MATLAB, Mathematica, Altair, Vega-Lite, Excel

HONORS & AWARDS

- Student & Early Career Travel Award by American Statistical Association 2022
- Graduate Student Conference Presentation Award by UW Graduate School 2022
- GPSS Travel Grant by UW Graduate & Professional Student Senate 2022
- R. Creighton Buck Scholarship 2019

PROFESSIONAL EXPERIENCE

Data Scientist Intern 06/2023-09/2023
Machine Learning and Optimization Team, *Amazon Advertising* Manager: Gan Yu

- Design online experiment framework to facilitate algorithm testing for Real Time Bidding
- Create bidding simulator based on data logs (10M+ a day) to model contention effects

RESEARCH EXPERIENCE

Graph-Assisted Methods for Machine Learning, Network Analysis, and Epidemic Modeling

Graph Learning for Single-Cell RNA with Velocity 03/2023-Present
Advisor: Yen-Chi Chen (UW Stats), Kevin Lin (UW Biostat)

- Learn graphical representation for scRNA-seq data with inferred RNA velocity field

Skeleton Regression: A Graph-Based Approach to Estimation on Manifold 08/2021-Present
Advisor: Yen-Chi Chen

- Propose a novel regression framework to deal with covariates lying around low-dimensional manifold structures with noises (Python package and R package)

Skeleton Clustering: Dimension-Free Density-Aided Clustering 12/2019-07/2022

- Propose a clustering framework on large-scale high-dimensional data with new similarity measures (Interactive visualizations and R package)

Epidemic Model Failures under Missingness 09/2021-Present

Advisors: Tyler McCormick (UW Stats & Sociology), Arun Chandrasekhar (Stanford Econ), Paul Goldsmith-Pinkham (Yale Management)

- Characterize failure conditions for epidemic model on contact networks with missingness
- Simulate epidemic diffusion on networks with different geometric structures

On the Translates of General Dyadic Systems on R 05/2018-07/2018

Advisors: Theresa C. Anderson (UW-Madison & Purdue Math)

- Generalize the mathematical notion of distinct dyadic system and proved classification criteria

Financial and Healthcare Projects

The Effects of Noise Exposure and Aging on the Acoustic Reflex in Normal-Hearing People

PI: Ward R Drennan (UW Otolaryngology) 01/2020- 08/2020

- Apply Mixed Effects Models to identify indicators of subclinical hearing problems with experimental Audiology data

Model Maxima Series with Autoregressive Conditional Fréchet Model 07/2018-05/2019

Advisor: Zhengjun Zhang (UW-Madison Stats)

- Model maximum stock prices by incorporating dynamic components into a generalized extreme value model with applications to stock returns and foreign exchange trading

PUBLICATIONS

Journal Publications

[1] **Wei, Z.**, Chen, Y. (2023*)* Skeleton Clustering: Dimension-Free Density-Aided Clustering, *Journal of the American Statistical Association* (Top Statistics journal)

[2] **Wei, Z.**, Chen, Y. Skeleton Regression: A Graph-Based Approach to Estimation on Manifold (manuscript submitted to Journal of Machine Learning Research)

[3] Anderson, T.C., Hu, B., Jiang, L., Olson, C., **Wei, Z.** On the translates of general dyadic systems on R. *Mathematische Annalen*. 377, 911–933 (2020). (Top Math journal)

Conferences

[4] **Wei, Z.**, Chen, Y. Skeleton Regression: A Graph-Based Approach to Estimation with Manifold Structure, *Joint Statistical Meeting 2023*

[5] **Wei, Z.**, Chen, Y. Skeleton Clustering: Graph-Based Approach for Dimension-Free Density-Aided Clustering, *NeurIPS 2022 Workshop, New Frontiers in Graph Learning*

[6] **Wei, Z.**, Chen, Y. Noval Graph-Assisted Approach to Estimation on Manifold, *Symposium on Data Science & Statistics, 2022*

[7] Drennan, W., Langley, L., **Wei, Z.** The Effects of Noise Exposure and Aging on the Acoustic Reflex in Normal-Hearing People, *182nd Meeting of the Acoustical Society of America, 2022*

[8] **Wei, Z.**, Chen, Y. Skeleton Clustering: Dimension-Free Density-Based Clustering, *Joint Statistical Meeting 2021*

SERVICES & VOLUNTEERS

-Organizer of the Geometric Data Analysis Reading Group, UW Statistics 10/2021-Present

-Lead Tutor, coordinating tutoring center in UW Statistics department 09/2021-06/2023

-Teaching Assistant: Machine Learning, Stochastic Process, Intro to Statistics 09/2019-Present